

Chemetator®

Scraped Surface Heat Exchanger

The Chemetator is a scraped surface exchanger ideal for many applications in the food, pharmaceutical and chemical industries. During operation, the product flows through a jacketed cylinder containing a rotating central shaft on which the scraper blades are mounted. These rotating blades continuously remove the product from the heat transfer tube.

The Chemetator is particularly suitable for the continuous processing of high viscosity and heat sensitive materials which cannot be handled efficiently using batch methods or conventional heat exchangers.



Chemtech International Ltd

Chemetator

Scraped Surface Heat Exchanger

Increased Efficiency

The Chemetator features variable speed rotating scraper blades which clean the heat transfer surface several hundred times a minute. This ensures excellent product mixing and high heat transfer efficiency on a continuous basis. Product mixing can be improved still further with the use of an optional eccentric shaft.

Flexibility

The Chemetator will handle a wide range of heat sensitive and viscous materials at temperatures from -35° to 170°C and operating pressures up to 70 bar (1015 psig).

Hygienic Operation

Stainless steel units ensure optimum hygiene standards and the closed system operates under pressure, preventing any atmospheric contamination of the product during processing. The Chemetator can be easily sterilised and is ideally suited for aseptic processing systems.

Product Quality

The Chemetator ensures a product of uniform composition and quality. Accurate control and high throughput speed mean virtually no product degradation.

Construction Options

Available in a range of sizes, the Chemetator can be manufactured in materials most suited to the application. Heat transfer tubes can be supplied in nickel or mild steel, with hard chromium plating for wear resistance, or in stainless steel or Venjex. Mutator shafts are available in stainless or mild steel and can be supplied in different diameters to suit particular products. Different arrangements of blades are used according to the application.

Chemetator Applications

Simplicity of operation combined with accurate process control makes the Chemetator ideal for heating, cooking, pasteurising, sterilising, cooling, gelatinising and crystallising.

Examples are:- Liquorice

The Chemetator enables processing of liquorice paste at its final 20% moisture content thus saving steam costs and eliminating the need for stoving.

Starch Jellies

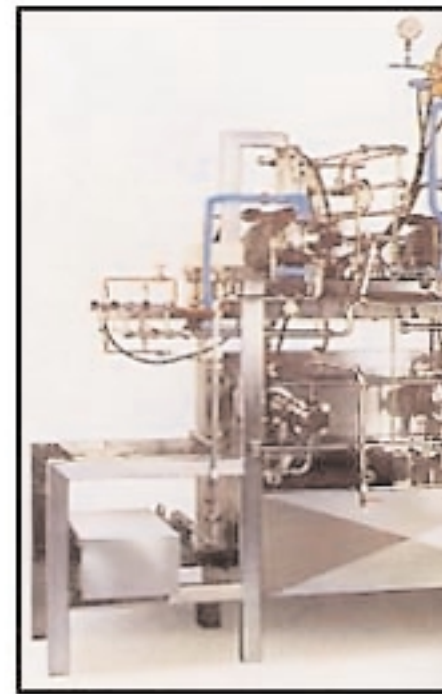
Continuous cooking of starch jellies can be achieved in seconds at elevated temperatures of 140°C in a Chemetator system.

Cooling of Biscuit Cream

Chemetators are used extensively for the cooling of sugar and oil blends which are directly fed to the creamer. Air injection prior to chilling allows density adjustment.

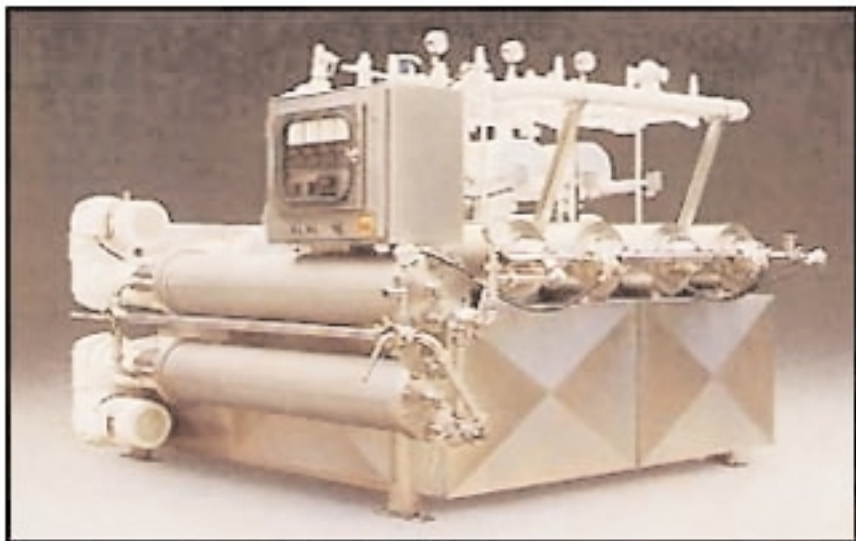
Chilling of Edible Fats

The Chemetator is standard equipment throughout the margarine industry giving a consistent texture of product on a fully continuous system from blending to packaging. Numerous processing ancillaries give the Chemetator the ability to process tub, block, cake and pastry margarines as well as low fat spreads.



Chemetator pilot plant

*Chemetator model
246 - A4M*



Throughout the world Chemetators are in operation producing pumpable and bulk filled shortenings and ghees. Lard is also processed either for consumer packs or semi-liquid bulk filling.





Gelatine

Chemetator cooling of gelatine has been adopted by all the major manufacturers. The unique oval tube model allows highly concentrated product from the evaporator to be continuously chilled and then gelled in a short holding tube before being extruded in noodle form direct onto the band dryer.

Marshmallow

The oval tube facility allows cooling of aerated marshmallow and extrusion in final form where required.

Peanut Butter

Smooth and crunchy peanut butter can be cooled to filling temperatures on Chemetator equipment.

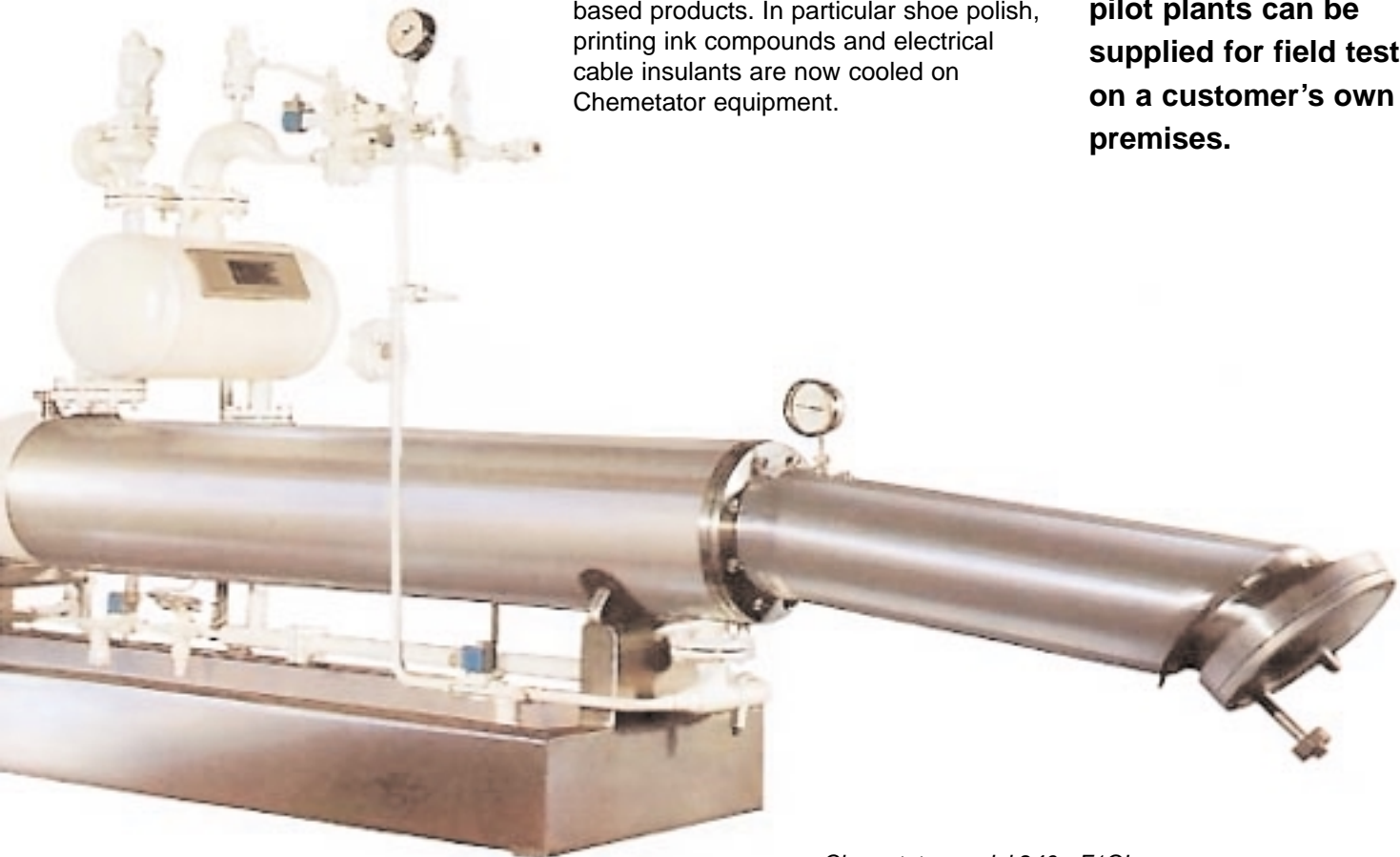
Waxes

The ability of the Chemetator to produce a very small crystal size and to extrude in a solid form has proved advantageous in a number of processes involving wax based products. In particular shoe polish, printing ink compounds and electrical cable insulants are now cooled on Chemetator equipment.

With unrivalled experience and expertise in processing technology, Chemtech International Limited is in a position to design, manufacture and install complete processing plants.

This includes the provision of control systems offering the very latest in computer-based techniques.

A purpose-built laboratory equipped with a full range of processing and ancillary equipment is available for trial and assessment. In addition, pilot plants can be supplied for field testing on a customer's own premises.

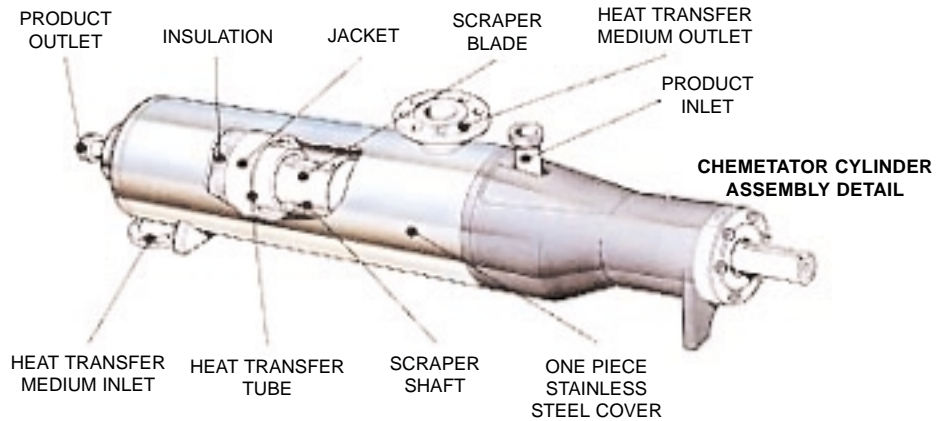


Chemetator model 246 - F1GL



Optimum Design Construction

The key to the system is the horizontal heat transfer cylinder, jacketed for direct expansion refrigerant. The standard design carries a scraper shaft with diametrically opposed rows of floating type scraper blades mounted within the cylinder. The shaft can easily be removed from its bearing and coupling support for cleaning, inspection and maintenance. The removable heat transfer tubes are normally made of nickel for optimal efficiency and wear resistance. As the shaft rotates, the blades continuously scrape the inside diameter of the tube at a rate of approximately 1000 scrapes per minute ensuring optimal emulsion crystallisation, mixing and heat transfer.



TECHNICAL DATA

MODEL	HEAT TRANSFER AREA (nominal)		CYLINDER INTERNAL DIAMETER		CYLINDER LENGTH (nominal)	
	m ²	ft ²	mm	ins	mm	ins
Laboratory Unit						
111	0.06	0.75	75	3	300	12
6" Production Lines						
212	0.25	3	154	6	620	24
214	0.54	6	154	6	1220	48
216	0.84	9	154	6	1820	72
10" Production Lines						
315	1.25	13	250	10	1600	63
317	1.75	19	250	10	2230	88

Note: Configurations of Multi-Cylinder units can be constructed.



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